

WHAT IS CLAIMED IS:

1. A method of unlocking a locked structure comprising the steps of:

5 (a) creating a cryptogram at an encryption device located remote of said locked structure, said encryption device having a first clock, by encrypting a time representation based upon said first clock with an encrypting cryptographic key for said locked structure using an encryption algorithm;

10 (b) transporting said cryptogram from said encryption device to said locked structure;

(c) inputting said cryptogram into a decryption device at said locked structure, said decryption device having:

15 (i) a decryption algorithm corresponding to said encryption algorithm,

(ii) a decrypting cryptographic key corresponding to said encrypting cryptographic key at said encryption device, and

20 (iii) a second clock at the encryption device operating at a fixed time relationship to said first clock;

(d) decrypting said cryptogram using said decryption algorithm and said decrypting cryptographic key at said decryption device to produce a decrypted time representation;

25 (e) comparing said decrypted time representation with a time representation based upon said second clock; and

(f) unlocking said lock at said structure if said decrypted time representation meets a time-based criteria relative to said time representation based upon said second clock.

30 2. The method as defined in claim 1, and the steps of:

providing a plurality of locked structures each having a decryption device associated therewith, said decryption device including a decryption algorithm corresponding to said encryption algorithm, a decrypting cryptographic key identifying said locked structure, and a second clock operating at a fixed relationship to said first clock; and

providing an encryption device having a plurality of encrypting cryptographic keys stored therein and correlated to a plurality of structure identifiers for said plurality of locked structures; and wherein,

5 said step of creating said cryptogram is accomplished by inputting a selected one of the plurality of structure identifiers into said encryption device to select an encrypting cryptographic key for use with said encryption algorithm; and

10 said transporting step is accomplished by transporting said cryptogram to a structure having a decrypting cryptographic key matching the selected encrypting cryptographic key.

15 3. The method as defined in claim 2, and the step of:
inputting other data to said encryption device prior to said encrypting step; and
during said encrypting step, creating a cryptogram including said other data; and
during said decrypting step, separating said other data
20 from said decrypted time representation.

4. The method as defined in claim 3 wherein,
the step of inputting other data is accomplished by inputting a PIN for the person performing the transporting step.

25 5. The method as defined in claim 2 wherein,
said step of providing a plurality of locked structures is accomplished by providing said locked structures as a plurality of locked containers.

30 6. The method as defined in claim 2 wherein,
said step of providing a plurality of locked structures is accomplished by providing said locked structures as a plurality of locked rooms.

7. The method as defined in claim 2 wherein,
said step of encrypting a time representation with the
selected encrypting cryptographic key is accomplished by using
a time from said first clock at which said inputting of said
5 structure identifier occurs.
8. The method as defined in claim 7 wherein,
the step of encrypting is accomplished by using a time
offset relative to the time from said first clock to account
for a difference in time between said first clock and said
10 second clock.
9. The method as defined in claim 7 wherein,
the step of encrypting is accomplished by using a time
offset relative to the time from the first clock to delay
unlocking of said lock.
10. The method as defined in claim 7 wherein,
said step of encrypting a time representation with the
selected encrypting cryptographic key is accomplished by
creating a time representation based upon time from said first
clock and a period factor.
11. The method as defined in claim 10 wherein,
said step of creating a time representation includes
dividing a clock time from said first clock by said period
factor.
12. The method as defined in claim 11 wherein,
said period factor includes a date interval.
13. The method as defined in claim 3 wherein,
said step of providing a plurality of locked structures
is accomplished by providing said locked structures as
package-receiving locked boxes, and the step of:
30 positioning said boxes at a plurality of spaced apart
locations.

14. The method as defined in claim 13 wherein,
said positioning step is accomplished by positioning
said package-receiving locked boxes at a plurality of
residences.
- 5 15. The method as defined in claim 3 wherein,
said step of providing a plurality of structures is
accomplished by providing a plurality of locked residences;
and
said step of inputting other data is accomplished by
10 inputting identifying data as to a person authorized to enter
a selected one of said residences.
16. The method as defined in claim 15 and the step of:
at said decryption device recording the time of input
of said cryptogram and said identifying data as to the
15 authorized person.
17. The method as defined in claim 1 wherein,
said transporting step is accomplished by physically
transporting said cryptogram from said encryption device to
said decryption device.
- 20 18. The method as defined in claim 1 wherein,
said first clock is operating at a clock time different
from said second clock, and
said time-based criteria for unlocking said lock is that
said step of inputting said cryptogram must be accomplished
25 after the clock time of said second clock reaches the clock
time encrypted into said cryptogram.
19. The method as defined in claim 2 wherein,
said plurality of structures each can be unlocked using
a different cryptogram.
- 30 20. The method as defined in claim 1 wherein,

said encrypting step is accomplished using a time representation based upon clock time from said first clock and a known opening time period.

21. The method as defined in claim 1 wherein,
5 said encrypting step is accomplished by inputting said encrypting device with an opening time period for use with a clock time from said first clock to produce said time representation.

22. The method as defined in claim 21 wherein,
10 the opening time period input establishes an earliest time at which said lock can be unlocked.

23. The method as defined in claim 1 wherein,
 said step of creating a cryptogram is accomplished by using symmetrical block encryption and decryption algorithms.

24. The method as defined in claim 1 wherein,
15 said step of creating a lock cryptogram is accomplished by using unsymmetrical encryption and decryption algorithms.

25. The method as defined in claim 24 wherein,
 the unsymmetrical algorithms are public key/private key
20 algorithms.

26. The method as defined in claim 24 wherein,
 said step of creating a cryptogram is accomplished by using an encryption algorithm producing a cryptogram of six digits or less.

27. The method as defined in claim 23 wherein,
25 said step of creating a cryptogram is accomplished by using an encryption algorithm producing a cryptogram of six digits or less.

28. A locked portal opening control system comprising:

an encryption device responsive to input of a structure identifier to encrypt an encrypting cryptographic key for a structure with a time representation to produce a cryptogram output;

5 a structure remote of said encryption device having a lock mechanism controlling access to said structure; and

 a decryption device located at said structure and having an unlocking assembly coupled to said lock mechanism, said decryption device being responsive to input of said cryptogram
10 to unlock said lock mechanism if a decrypted time representation produced by decrypting said cryptogram meets a time-based criteria in said decryption device.

29. The locked portal opening control system as defined in claim 28 wherein,

15 said encryption device includes a first clock and an encryption algorithm;

 said decryption device includes a second clock operating a fixed time relationship to said first clock, and a decryption algorithm corresponding to said encryption
20 algorithm; and

 said decryption device decrypts said cryptogram to produce a decrypted time representation and compares said decrypted time representation against a time representation based upon a clock time of said second clock to cause said
25 unlocking assembly to unlock said lock mechanism if the decrypted time representation meets said time-based criteria.

30. The locked portal opening control system as defined in claim 28, and

 a plurality of structures remote of said encryption device each having a lock mechanism controlling access thereto; and
30

 said encryption device being responsive to input of said structure identifier to select one of said plurality of structures to produce a cryptogram suitable for unlocking

the lock mechanism for the selected one of said plurality of structures.

31. The locked portal opening control system as defined in claim 28 wherein,

5 said encryption device includes an encryption processor and an input device, a first clock, a storage device and an output device, all coupled to said encryption processor;

10 said storage device of said encryption device has an encryption algorithm and a plurality of encrypting cryptographic keys stored therein ;and

 said encryption processor is responsive to a structure identifier input through said input device to:

 (i) select one of said plurality of encrypting cryptographic keys from said storage device,

15 (ii) obtain a clock time from said first clock and produce a time representation from said clock time,

20 (iii) encrypt said time representation with the selected encrypting cryptographic key using the stored encryption algorithm to produce said cryptogram,

 (iv) and output said cryptogram at said output device.

32. The locked portal opening control system as defined in claim 31 wherein,

25 said decryption device includes a decryption processor, and an input device and a second clock coupled to said decryption processor;

30 said second clock operating at a fixed time relationship to said first clock, and said unlocking mechanism being coupled to said decryption processor;

 said decryption device further includes a decrypting cryptographic key corresponding to said encrypting cryptographic key selected by said encryption device, and

a decryption algorithm corresponding to said encryption algorithm; and

said decryption processor being responsive to input of said cryptogram through the input device of said decryption device to:

- (i) decrypt said cryptogram using said decryption algorithm and the decrypting cryptographic key to produce a decrypted time representation,
- (ii) obtain a clock time from said second clock and produce a time representation based thereon,
- (iii) compare said decrypted time representation with the time representation obtained from said second clock, and
- (iv) actuate said unlocking assembly to unlock said lock mechanism if said decrypted time representation meets known time-based criteria relative to said time representation obtained from said second clock.

33. The locked opening control system as defined in claim 30 wherein,
said plurality of structures are provided by a plurality of locked containers spaced apart from each other.

34. The locked portal opening control system as defined in claim 30 wherein,
said plurality of structures are provided by a plurality of locked rooms.

35. The locked portal opening control system as defined in claim 28 wherein,
said encrypting encryption device is formed to modify said encryption key selected by said structure identifier using additional data input to said encryption device; and
each of said decryption devices is formed to separate said additional data from said time representation during decryption of said cryptogram.

36. The locked portal opening control system as defined in claim 35 wherein,

5 each of said decryption devices is coupled to a recording device for recording of clock time of said second clock upon input of said cryptogram into said decryption device and for recording said additional data.

37. The locked portal opening control system as defined in claim 28 wherein,

10 said encryption algorithm and said decryption algorithm are block type algorithms.

38. The locked portal opening control system as defined in claim 28 wherein,

said encryption algorithm and said decryption algorithm are non-symmetrical public key/private key algorithms.

15 39. This locked opening control system as defined in claim 38 wherein,

said encryption algorithm and decryption algorithm produce a cryptogram of six digits or less.

40. A lock box unlocking control system comprising:

20 a plurality of lock boxes positioned in spaced apart locations, each lock box having a lock mechanism, an unlocking device operatively connected to unlock said lock mechanism, and a decryption device operatively connected to said unlocking mechanism to activate said unlocking device and
25 to cause unlocking of said lock mechanism upon entry of a cryptogram meeting time-based criteria into said decrypting device;

at least one encryption device formed to produce a cryptogram in response to input of a lock box identifier to
30 said encryption device;

said encryption device and said decryption device having matching encryption and decryption algorithms and having clocks operating in a fixed time relationship to each other;

said encryption device having a plurality of different encrypting cryptographic keys stored therein and correlated to a plurality of lock box identifiers;

5 said decryption device at each of said plurality of lock boxes having a different decrypting cryptographic key;

 said encryption device being formed to encrypt a time representation based upon a clock time of the encryption clock with an encrypting cryptographic key selected by input to said encryption device of a selected lock box identifier to
10 produce a cryptogram; and

 said decryption device being formed to decrypt said cryptogram using said decryption algorithm and a decrypting cryptograph key for the lock box into which said cryptogram is input to produce a decrypted time representation;

15 said decryption device further being formed to compare said decrypted time representation with a time representation based upon the clock time from the clock in said decryption device at the time of input of said cryptogram to said decryption device and to actuate said unlocking mechanism
20 if said decrypted time representation and said time representation have upon the decryption clock meet a required criteria.